

## SUMMARY AND CONCLUSIONS

Greening buildings through the LEED® Point rating system is increasingly becoming popular in the construction industry. The Columbia Heights Community Center is a prime example as it is striving to achieve a Silver certification. The analyses found in this report all touch upon this “green”, environmentally friendly trend.

The first analysis was geared towards determining common goals for achieving LEED®, and points that can be associated with them. Research was conducted to identify building owners’ initial goals for how and why they wanted to achieve LEED®. A tool was then generated in Microsoft Excel® that allows owners to input weights to common goals and lists LEED® points that correspond to these goals. Also, this research confirmed several popular points that many projects achieved.

The second analysis looked to reduce waste quantities through a redesign of the brick façade. The exact quantity of waste saved was unable to be determined, but it is known that the selected system, Slenderwall® Architectural Precast Paneling, does reduce waste since it is assembled in a factory setting. Also determined in this analysis was that there was no impacts to the structural system and mechanical system (despite increasing the insulation value of the wall).

The third analysis was intended to determine whether the amount of steel could be reduced in the gymnasium. A common steel beam in this area is a W40x215x60’. A structural redesign, using the RAM Steel v10.0 modeling software, looked to reduce the member sizes. It was found that the system could be reduced (still incorporating I-beams) or it could be changed to open-web joists. Open-web joists were determined to be the best option because not only did they reduce the amount of steel, they also saved costs.

Finally, the fourth analysis included an evaluation of the foundation placement method, geared towards minimizing the amount of soil to be removed. The original plan was to perform a bulk excavation of the entire site to below the footing elevation and then use forms for placing the concrete. This analysis checked if it was feasible to just dig trenches and pour concrete directly into the trench, without the use of forms. It was determined that the trench method would not only save money and time, it would significantly reduce the amount of soil to be removed.